



OXYGEN COMPATIBILITY ASSESSMENTS

SUMMARY

Fire hazards associated with oxygen-enrichment occur in systems with oxygen concentrations above 21 percent and in air systems at increased pressures. Using the latest NASA, American Society for Testing and Materials (ASTM), and other industry standard oxygen compatibility documents and data, White Sands Test Facility (WSTF) can determine the fire hazards associated with oxygen-enriched atmospheres in systems and components. The customer receives a report itemizing the fire hazards associated with the use of their system and recommendations to mitigate those hazards.

PROCEDURE

WSTF follows the procedure outlined in NASA Technical Memorandum 2007-213740, *Guide for Oxygen Compatibility Assessments on Oxygen Components and Systems*. There are several steps to determine the oxygen fire hazard associated with a component or system. First, the flammability of the materials of construction is determined using test data. Second, the presence of credible ignition hazards is determined. Third, the effect of an ignition and fire on the component and system is determined.

CUSTOMER INPUTS

To effectively analyze a component or system for oxygen fire hazards, WSTF needs accurate and complete information from the customer. Information is needed regarding the component configuration, which includes the materials of construction, dimensions, and a cut-away drawing of the component(s) highlighting the oxygen-wetted areas. The operating conditions of the component or system, including maximum temperature, velocity, oxygen-concentration, and pressures are also necessary for the analysis.

RESULTS

The results of each oxygen fire hazards analysis at WSTF are recorded in a standardized oxygen hazards report. The report documents the information given to WSTF by the customer and records the flammability, ignitability, and damage potential for each component analyzed. The report is reviewed and edited by several members of the WSTF oxygen hazards analysis team and provided to the customer in both electronic and hard copy formats.

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